What is claimed is:

[Claim 1]

1. A flat fluorescent lamp, comprising:
two substrates;
side walls having a shape corresponding to the edges of the two substrates and forming closed spaces for discharging inside by joining to the two substrates;
partitions formed on at least one surface of the two substrates and forming multiple discharge channels of an independent serpentine layout while separating the two substrates each other; and
discharge electrodes arranged on electrode regions formed as channels on both opposite ends of the starting and ending points of the discharge channels of serpentine layout and for discharging the discharge channels in parallel,
wherein an exhaust channel is formed independently from the discharge channels and the exhaust channel is connected to the multiple discharge channels of serpentine layout and used for vacuum exhaustion and discharge gas injection.

[Claim 2]

2. The flat fluorescent lamp of claim 1, wherein the cross sectional area of the exhaust channel or the cross sectional area of the connecting part connecting the exhaust channel to the discharge channels can be configured to be smaller than the cross sectional area of the discharge channels.

[Claim 3]

3. The flat fluorescent lamp of claim 1, wherein the connecting regions of the discharge channels and the exhaust channel can be formed either at ending portions or at bending portions most adjacent to the electrodes having the same polarity in the multiple discharge channels having a serpentine layout.

[Claim 4]

4. The flat fluorescent lamp of claim 1, wherein the discharge electrode are composed of external electrodes.

[Claim 5]

5. The flat fluorescent lamp of claim 1, wherein the discharge electrodes are configured by hybridizing an internal electrode made of metal and an external electrode.

[Claim 6]

6. The flat fluorescent lamp of claim 5, wherein the internal electrode is configured to form a projecting portion by bending a plate type metal.

[Claim 7]

7. The flat fluorescent lamp of claim 1, wherein the discharge electrode further includes an auxiliary electrode to be arranged at an outer part of the discharge channels in order to reduce a firing potential.

[Claim 8]

8. The flat fluorescent lamp of claim, wherein the discharge electrode further includes an auxiliary electrode to be arranged at an outer part of the discharge channels in order to reduce a firing potential.

[Claim 9]

9. The flat fluorescent lamp of claim 5, wherein the discharge electrode further includes an auxiliary electrode to be arranged at an outer part of the discharge channels in order to reduce a firing potential.

[Claim 10]

10. The flat fluorescent lamp of claim 7, wherein the auxiliary electrode may extend along the discharge channels from the discharge electrode in a continuous line shape or across the discharge channels.

[Claim 11]

11. The flat fluorescent lamp of claim 7, wherein the auxiliary electrode is configured to be formed along the discharge channels in a discontinuous shape and be in a floating state.

[Claim 12]

12. The flat fluorescent lamp of claim 7, wherein the auxiliary electrode is formed on the outer surface of the substrates and made of a conductive body of a transparent material.

[Claim 13]

13. The flat fluorescent lamp of claim 8, wherein the auxiliary electrode is formed on the outer surface of the substrates and made of a conductive body of a transparent material.

[Claim 14]

14. The flat fluorescent lamp of claim 8, wherein the auxiliary electrode is formed on the outer surface of the substrates and made of a conductive body of a transparent material.

[Claim 15]

15. The flat fluorescent lamp of claim 8, wherein the auxiliary electrode is formed on the outer surface of the substrates and made of a conductive body of a transparent material.

[Claim 16]

16. The flat fluorescent lamp of claim 9, wherein the auxiliary electrode is formed on the outer surface of the substrates and made of a conductive body of a transparent material.

[Claim 17]

17. The flat fluorescent lamp of claim 9, wherein the auxiliary electrode is formed on the outer surface of the substrates and made of a conductive body of a transparent material.

[Claim 18]

18. The flat fluorescent lamp of claim 9, wherein the auxiliary electrode is formed on the outer surface of the substrates and made of a conductive body of a transparent material.

[Claim 19]

19. The flat fluorescent lamp of claim 1, wherein discharge electrodes of different polarities are applied to the electrode regions of both opposite ends of the respective discharge channels of serpentine layout, discharge electrodes of the same polarity are arranged in the same direction, and the plurality of electrode regions corresponding to at least one polarity and the exhaust channel can be configured independently from each other and can be connected to the connecting parts.

[Claim 20]

20. The flat fluorescent lamp of claim 1, wherein discharge electrodes of different polarities are applied to the electrode regions of both opposite ends of the respective discharge channels of serpentine layout, discharge electrodes of the same polarity are arranged in the same direction, and the exhaust channel can be formed by passing through the plurality of electrode regions corresponding to at least one polarity.

[Claim 21]

21. The flat fluorescent lamp of claim 19, wherein adjacent discharge channels of serpentine layout are formed to have a shape symmetrical to each other.

[Claim 22]

22. The flat fluorescent lamp of claim 20, wherein adjacent discharge channels of serpentine layout are formed to have a shape symmetrical to each other.

[Claim 23]

23. The flat fluorescent lamp of claim 1, wherein discharge electrodes of different polarities are applied to the electrode regions of both opposite ends of the respective discharge channels of serpentine layout, the electrode regions connected to the same discharge channel are arranged in the same direction, adjacent discharge channels of serpentine layout have a shape symmetrical to each other, and the exhaust channel can be connected to the electrode regions of the same polarity as they are formed along the side walls.

[Claim 24]

24. The flat fluorescent lamp of claim 1, wherein discharge electrodes of different polarities are applied to the electrode regions of both opposite ends of the respective discharge channels of serpentine layout, the electrode regions connected to the same discharge channel are arranged in the same direction, adjacent discharge channels of serpentine layout have a shape symmetrical to each other, with the polarities of the electrode regions being symmetrical, and the exhaust channel can be formed between the electrode regions of the same polarity of the discharge channels of serpentine layout.

[Claim 25]

25. The flat fluorescent lamp of claim 1, wherein discharge electrodes of different polarities are applied to the electrode regions of both opposite ends of the respective discharge channels of serpentine layout, every electrode region is arranged in one direction, the exhaust channel is formed independently in the opposite direction of the arrangement of the electrode regions, and the exhaust channel can be connected to bending end portions of the discharge channels of serpentine layout.

[Claim 26]

26. The flat fluorescent lamp of claim 1, wherein discharge electrodes of different polarities are applied to the electrode regions of both opposite ends of the respective discharge channels of serpentine layout, every electrode region is arranged in one direction, the exhaust channel is formed independently in the opposite direction of the arrangement of the electrode regions, and the exhaust channel is connected at the middle parts of the final lines of the respective discharge channels of serpentine layout and of the first lines of the subsequent discharge channel of serpentine layout.

[Claim 27]

27. The flat fluorescent lamp of claim 1, wherein the respective discharge channels can be connected in parallel and driven by using only the internal electrode in the electrode spaces and connecting a capacitive external device to the internal electrode.

[Claim 28]

28. The flat fluorescent lamp of claim 1, wherein the internal electrode is optionally used in the electrode spaces, a projecting portion can be formed on the internal electrode.

[Claim 29]

29. The flat fluorescent lamp of claim 28, wherein a bending portion is formed on the projecting portion so that the projecting portion can be located at the center part of the discharge channel.

[Claim 30]

30. The flat fluorescent lamp of claim 28, wherein the end parts of the projecting portion has a cylindrical shape.

[Claim 31]

31. The flat fluorescent lamp of claim 29, wherein the end parts of the projecting portion has a cylindrical shape.

[Claim 32]

32. The flat fluorescent lamp of claim 1, wherein the discharge channels of one independent serpentine layout forms one independent serpentine layout by overlapping discharge spaces in an orthogonal direction between the electrodes of both opposite ends and alternatively forming bending portions on the ends of the discharge spaces, and there is formed a plurality of the discharge channels of the impendent serpentine layout.